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Module 1 Introduction

Introduction

Welcome to the Project Management Overview!

This workshop is designed to give the audience an overview of the project management process, including the key concepts, tools, and techniques. This workshop will help you achieve grater success in your work, regardless of whether you...

- Know a lot about project management.
- Are responsible for managing some kind of project or projects.
- Want your project(s) to achieve high-quality results, on-time and within budget.
- Are a specialist contributing to one or more projects.
- Know very little about project management.
- Want to work through the University of Colorado at Denver's Certificate Program in project management or other professional programs.
- Want to begin preparing for certification as a Project Management Professional (PMP® through the Project Management Institute (PMI®).*

In any case, you are sure to find this workshop of value.

***** "PMI and PMP" are trademarks, service marks or certification marks of the Project Management Institute, Inc., which is registered in the United States and other nations."

Workshop Logistics

Use the table below to record the logistics for your particular workshop.

Instructor	
Instructor's e-mail	
Start/end times	
Lunch (approximate)	
Breaks	
Facilities	

Introduction

How to Get the Most Out of This Workshop

Generally, what people get from any workshop is directly related to what they put in. To help you maximize the value you derive from this Project Management Overview you should consider doing the following:

- Keep an open mind.
- Respect others' views.
- Participate.
- Ask questions any time.
- Put aside other work and problems.
- Turn cell phones and pagers to silent.
- Avoid outside interruptions.
- Dress comfortably.
- Have fun!

Workshop Objectives

This workshop has been designed to help you accomplish a great deal in a short period of time.

By the end of this workshop, you will be able to:

- Understand the key points of the project management process
- Identify some of the tools and techniques
- Practice using some of the techniques during a case study
- Discuss and explore project management ideas, concerns, and issues
- Identify areas that can benefit from applying professional project management principles

Introduction

Workshop Contents

Our agenda today will include the following topics:

- Project management Concepts
- The People Side of Project Management
- Initiating the Project
- Planning the Project
    - Decomposition
    - Estimating
    - Sequencing and Scheduling
    - Risk Management
- Executing the Project
- Monitoring & Controlling the Project
- Closing the Project
- Summary and Conclusion

Using a case study format, you will have a chance to explore some of these topics in more depth. You and your teammates will experience some of the project processes and actually apply the tools and techniques introduced throughout the workshop to the case study. As a result, you will leave the workshop better equipped to practice more effective project management in your job.

PMBOK® Guide

All definitions and processes included in this workshop are consistent with the Project Management Institute's *A Guide to the Project Management Body of Knowledge* (PMBOK® Guide). This workshop will also help you understand the nine Project Management Knowledge Areas defined by the Project Management Institute (PMI®).

The knowledge areas are:

- **Project Integration Management** —Ensuring that the various elements of the project are properly coordinated.
- **Project Scope Management** —Ensuring that the project includes all the work required, and only the work required, to complete the project successfully.
- **Project Time Management** —Ensuring timely completion of the project.
- **Project Cost Management** —Ensuring that the project is completed within the approved budget.
- **Project Quality Management** —Ensuring that the project will satisfy the needs for which it was undertaken.
- **Project Human Resource Management** —Making the most effective use of the people involved with the project.
- **Project Communications Management** —Ensuring timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.
- **Project Risk Management** —Identifying, analyzing, and responding to project risk.
- **Project Procurement Management** —Identifying which project needs can be best met by procuring products or services outside the project organization.

Notes

Module 2

Project Management Concepts

Project Management Concepts

Project Management in the Enterprise Environment

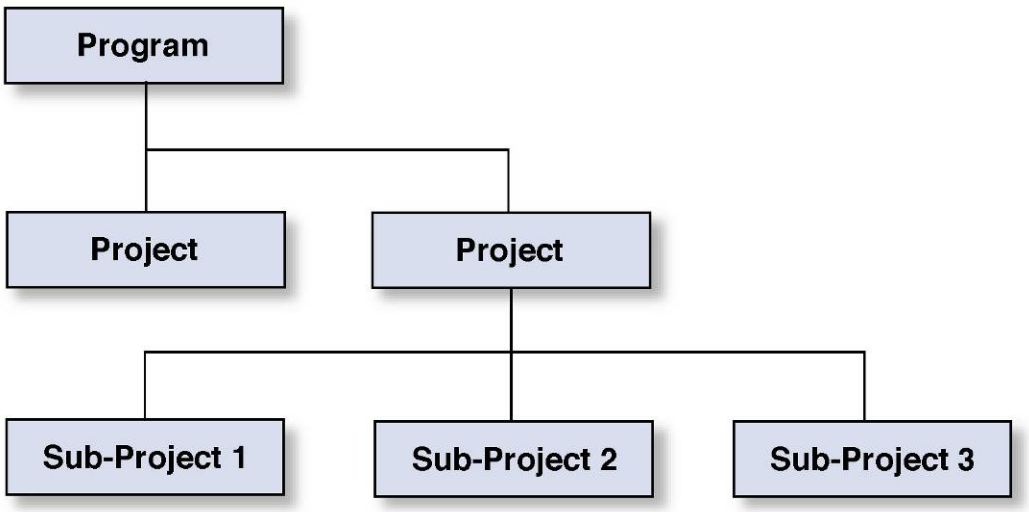
Project management is a "scalable" discipline, meaning that it can be applied to efforts of all sizes, from extremely large to quite small. Organizations view project management as a way to help them efficiently accomplish the work required to achieve both short- and long-term strategic plans.

Project management exists in a larger context that includes portfolio management, program management, and, more and more often, the project management office.

Keep in mind that, in any organization, the work can be divided into two distinctive categories: operations and projects. Operations and projects share many characteristics. Both are performed by people using scarce resources, and both must be planned, organized, and controlled. However, operations are typically repetitive and ongoing. They are intended to sustain the business. A project, on the other hand, has a definite beginning, and it ends once its objectives have been realized.

Many operations types of work can be "grouped" or "batched" and managed as projects. Organizations that do this are engaging in "managing by projects." The types of operations that lend themselves to managing by projects are often cyclical or repetitive undertakings such as publishing a newspaper or coordinating multiple releases over a period of time.

An organization's strategic plans may be divided into a hierarchy of programs, projects, and sub-projects. Sometimes these programs and projects may be grouped by portfolio. Project management concepts can be applied at each of these levels to manage the work.



Programs

A program is a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may also involve a series of repetitive or cyclical undertakings. Applied at the program level, project management is referred to as "program management" and focuses on achieving the program's strategic objectives and benefits.

A Program

A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.

Projects and Sub-Projects

A Project

A temporary endeavor undertaken to create a unique product, service, or result.

A project is also something that, in some unique way, has not been done before, and, therefore, each project is different in some way from other projects. Sometimes a project is so large that it must be divided into sub-projects.

Sub-Project

A smaller portion of the overall project created when a project is subdivided into more manageable components or pieces.

Project Management Concepts

Project Management Offices (PMOs)

As project management matures as a discipline and as organizations become more mature in the application of project management within their environments, project management offices are becoming more common. A project management office (PMO) is an organizational unit that centralizes and coordinates the management of projects and programs under its domain. A project management office may also be referred to as a "program management office," "project office," or "program office."

Project management offices can serve many functions. Organizations may define the roles and responsibilities of the PMO much differently from that of other organizations. Some functions of a PMO may include:

- Training, coaching, and mentoring
- Oversight of projects
- Managing shared resources across all projects administered by the PMO
- Project management software selection and support
- Identifying and developing project management methodology, best practices, and standards
- Developing and managing project policies, procedures, templates, and other shared documentation
- Monitoring compliance with project management standards, policies, procedures, and templates via project audits
- Coordinating communication across projects
- Managing shared resources across all projects administered by the PMO

Project Management Office (PMO):

An organizational body or entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain.

So What is Project Management?

Projects, because they are unique, generally involve some risk. To minimize the risk to the organization, and to achieve the greatest possible benefit, it is helpful to have a process for ensuring a successful outcome.

Therefore, we can define project management as:

> **Project Management:**
>
> *The application of knowledge, skills, tools, and techniques to project activities to meet project requirements.*

Project management typically involves the following:

- Identifying requirements
- Addressing the various needs, concerns, and expectations of the stakeholders as the project is planned and executed
- Balancing the competing project constraints including, but not limited to:
  - Scope
  - Quality
  - Schedule
  - Budget
  - Resources
  - Risk

Overall, project management is a managerial approach that can be applied to the management of projects and the management of some operations that are redefined as projects. For example, project management can be used to oversee the development of a new product; but it can also be used to oversee regular maintenance operations that are "batched" into "projects."

The discipline of formal project management continues to emerge and mature as a profession. Thus, a variety of terminology and methods are in practice, and much knowledge rests with individual project managers. The Project Management Institute, or PMI®, has identified and published in its *A Guide to the Project Management Body of Knowledge* (PMBOK®Guide) proven, traditional practices that are widely applied and generally accepted.

Project Management Concepts

Some organizations use a formal *methodology*, such as KnowHow™, to provide a consistent structure for project management. Methodologies may consist of particular steps, processes, and tools or templates used within an organization or industry when creating products or services. The tools and practices that comprise this workshop are PMI compliant and provide the project manager with techniques that can be used with virtually any project management methodology in any culture or environment when managing projects.

The Project Management Process

A process is any group of sequential or iterative activities designed to produce a desired result. The project management process is iterative and concerned with describing, organizing, and controlling the work of a project. It consists of five process groups, as illustrated and defined below:

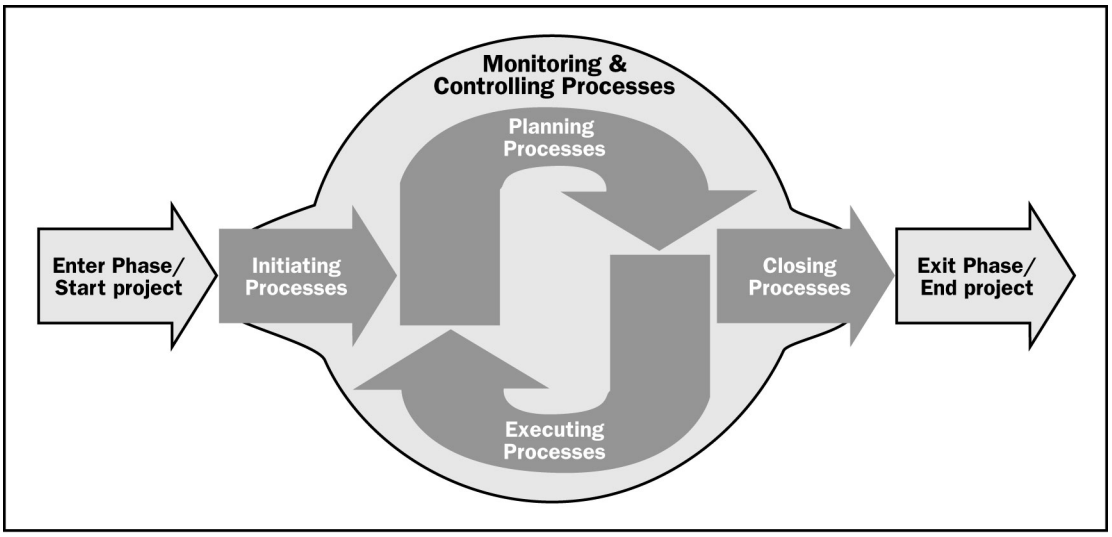


Figure 3-1. Project Management Process Groups

A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Fourth Edition. ©2008 Project Management Institute, Inc. All Rights Reserved.

- **Initiating Process Group** – Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
- **Planning Process Group** – Those processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
- **Executing Process Group** – Those processes performed to complete the work defined in the project management plan to satisfy the project specifications.
- **Monitoring and Controlling Process Group** – Those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
- **Closing Process Group** – Those processes performed to finalize all activities across all process groups to formally close the project or phase.

Project Management Concepts

The process groups are NOT phases and do not take the place of a project lifecycle. The project management process and its process groups are independent of application areas, type of project, and industry. In other words, the project management process and its process groups guide the work of any type of project in any industry.

The process groups apply to both the structure of an entire project and to each phase within a project's lifecycle. For example, a project will be initiated, planned, executed, controlled, and closed. However, each progressive phase within the project lifecycle or organization's methodology should also be initiated, planned, executed, controlled, and closed.

Project Phases

The phases in a project lifecycle improve management control and provide for links to the ongoing operations of the performing organization.

The transition from one phase to another in a project lifecycle usually involves a "handoff," in which the deliverables from one phase are used as input to the work on the next phase. However, sometimes phases may overlap when the management team deems the risk is acceptable. In systems this overlap may be called the Waterfall System Development Lifecycle. In project management, the concept of overlapping is called "fast tracking."

At the completion of a phase, the project manager will review the deliverable(s) and the project's performance, detecting and correcting any errors and/or variance. The management team will also decide whether the project should proceed to the next phase.

Project Phase

A collection of logically related project activities,
usually resulting in completion of a major project deliverable.

Project Management Concepts

Project Lifecycle

A project lifecycle consists of product-oriented processes that specify and create the project's product. It may have two or more distinct and sequential project phases that connect the beginning of the project to its end.

Project management processes and product-oriented processes overlap and interact throughout the project, allowing the organization and the project manager better control. This also enables project risk to be reduced because early phase work identifies and helps reduce the risk level before subsequent, more expensive phases are entered.

Project Life Cycle

A collection of generally sequential project phases whose name and number are determined by the control needs of the organization(s) involved in the project.

Project life cycles typically define:

- What work should be done and what deliverables will be created in each phase.
- When each deliverable is created within a phase.
- Who should be involved in each phase.
- How to control and approve each phase.

Some examples of project life cycles include the Waterfall System Development lifecycle, the Spiral Model, and Rational Unified Process (RUP).

Example of a PLC:

Rolling Wave Planning

Key challenges in project management include anticipating what must be done to achieve project objectives, how long it will take, and how much it will cost. A chief difficulty is that the future is, by definition, unknown. Rolling wave planning takes this into account.

Rolling Wave Planning:

A form of progressive elaboration planning where the work to be accomplished in the near term is planned in detail at a low level of the work breakdown structure, while the work far in the future is planned at a relatively high level of the work breakdown structure. The detailed planning of the work to be performed within another one or two periods in the near future is done as work is being completed during the current period.

The rolling wave planning concept recognizes that a plan is a view of the project at a particular moment in time. The further into the future the plan reaches, the less accurate the plan tends to become. While short-term plans may be reasonably accurate, longer-term plans are, by nature, less accurate. Therefore, a plan must continually be updated as a project moves from start to finish. With rolling wave planning, it becomes clear that planning is an iterative and ongoing process within project management.

Project Management Concepts

What Defines a Successful Project?

Although planning is an iterative and ongoing process within a project, a project manager and the project's stakeholders must understand and agree upon the project's success criteria. When stakeholders agree about how to define the success of their project, planning can then focus on those activities that are most effective for the project's success.

Many factors may define the success of a project.

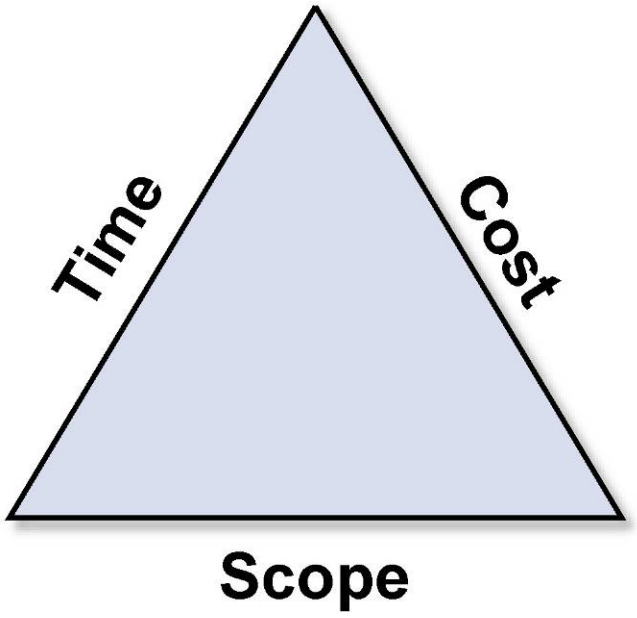
Use the space below to record your criteria for a successful project.

The Project Management Triangle

Success on projects depends on many factors. One definition of project management is that it is any set of activities performed to achieve a specific result within a specific time and at a specified cost. This is often called the "triple constraint."

The three factors of scope, time, and cost are interdependent. In other words, changing one may change the others. For example, if the scope of a project is expanded, it will likely cost more, take more time, or both. If it is desired to reduce the time the project takes, generally the cost will increase, the scope must decrease, or both.

Therefore, it can be said that project management is a science of making intelligent trade-offs between time, cost, and scope. To ensure that the project manager makes trade-offs in the best interest of the project, the Sponsor and key customers must agree on how to prioritize the sides of the triangle. Understanding the relative priority of time, cost, and scope will clarify decisions and approaches as the project proceeds.



Project Management Concepts

Critical Success Factors

Projects involve risk and uncertainty. Several factors reduce this risk and help to ensure success.

These factors include:

- Clear understanding of the project goals and objectives.
- Clear understanding of the requirements.
- Involvement of clients and management.
- Realistic estimates and schedules.
- Day-to-day control of the project.
- Well-managed client and management expectations.
- Effective communications.

Note that the last, “effective communications,” helps to ensure that the other factors will be present. As we will see, much of project management involves communication.

The Project Manager's Skills and Knowledge

The project manager should possess a number of skills to manage a project successfully. The job is multi-dimensional and requires ability in five specific areas.

- **Project Management Body of Knowledge.**
  This knowledge is specific to the discipline of project management. It includes understanding various project life cycles, the five project management process groups, and the nine knowledge areas.
- **Knowledge, Standards, and Regulations of the Application Area.**
  A project manager does not need to know how to do the job of each team member. However, he or she must be aware of the supporting disciplines, such as legal or training, that are required for specific types of projects, as well as a basic understanding of the technical project elements, such as software development or specific types of engineering.
- **Project Environment.**
  The project manager should understand the context of the project and how it fits into and affects the cultural and social environment, the international and political environment, and the physical environment.
- **General Management.**
  General management skills involve planning, organizing, staffing, executing and controlling the activities of an enterprise. These same skills are necessary to plan, staff, execute and control a project. They may include and understanding of accounting, purchasing, sales and marketing, contracting, strategic, tactical, and operational planning, and personnel administration.
- **Interpersonal Skills.**
  Having technical and organizational skills can take a project manager only so far. Because projects are accomplished through people, interpersonal skills are vital to the success of any project manager. These skills include effective communications, leadership, the ability to influence the organization, motivation, negotiation and conflict management, and problem solving.

Project Management Concepts

The Project Manager's Role

The project manager performs a variety of functions, all geared toward achieving the outcomes desired from the project.

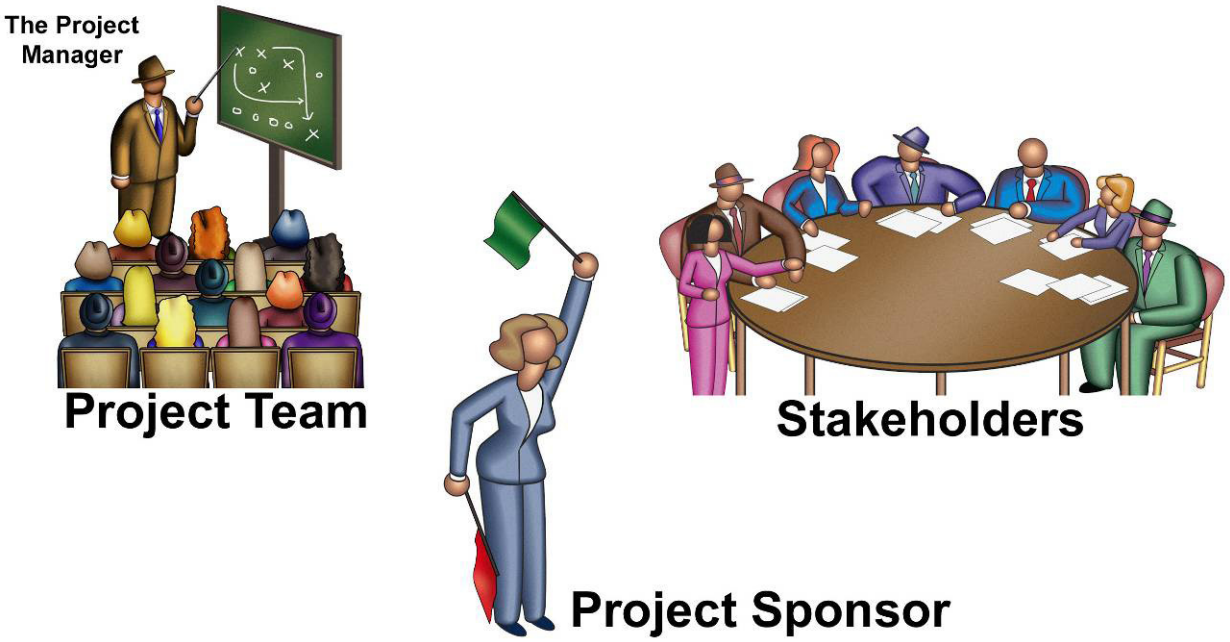
Some of the most important functions are:

- Provide leadership and motivation.
- Coordinate team members.
- Facilitate the work.
- Control the project.
- Maintain focus.
- Maintain commitment.
- Manage stakeholder expectations and relationships.
- Influence the organization.
- Use resources efficiently and effectively.

The Project Participants

In addition to the project manager, the three other principal project roles include:

- Project Sponsor
- Stakeholders
- Project Team



Project Management Concepts

The Project Sponsor

The Project Sponsor:

- Ultimately makes the decision that the project is worthwhile and should go forward.
- May be from the client organization, the organization that is responsible for managing projects, or the organization that will actually perform the work of the project.
- Commits organizational resources — people, their time, and a budget — to the project.
- Authorizes the project and is responsible for making crucial decisions.

Critical decisions commonly involve trade-offs. The project manager analyzes the impact of change requests on the project scope, using some of the techniques we shall explore later. Let's suppose the request will result in a need for some additional people to work on the project team. If the project manager lacks the authority to acquire resources, then it will generally be the Sponsor who decides whether the organization can afford to commit additional people to the effort.

For the project to be effective, it is important that the Sponsor:

- Is committed to the project.
- Provides guidance and direction.
- Reviews progress.
- Has the ability to allocate or secure resources.
- Allows autonomy by the project manager and project team.
- Makes critical decisions.
- Has the authority to cancel the project.

The Stakeholders

Stakeholders are individuals and organizations who are actively involved in the project or whose interests may be positively or negatively affected as a result of project execution or project completion. They may also exert influence over the project and its results.

Stakeholders may include:

- Project manager, sponsor, and team
- Clients or customers
- Owners or users of the product or service that the project is producing or modifying
- Managers and organizations who supply funding, materials, people, or other resources
- Vendors, contractors, suppliers
- Professionals or other specialists serving on the project team
- Regulators or legal agencies
- Members of the public who will be affected by the project outcome
- PMO
- Portfolio managers/portfolio review board
- Program managers

Sometimes it may simplify the stakeholder identification process by creating categories of stakeholders that are common for certain types of projects. Categories may be internal and external stakeholders, owners and investors, or sellers and contractors, to name a few.

It is important to identify the project stakeholders and involve them early in the project, and it helps if the stakeholders possess the following characteristics:

- Are committed to the project
- Communicate clearly their requirements
- Actively participate in the project
- Make time and allocate resources for the project
- Take ownership upon project completion
- Are available throughout the project as needed

Project Management Concepts

The Project Team

Project team members:

- Report either directly or indirectly to the project manager.
- Can be a temporary organization that exists only for the length of the project.
- Typically possess skills, knowledge, and expertise that are required to achieve the desired project outcomes.

One challenge many project managers face is that some project team members may not be dedicated full time to the project. It can be challenging to negotiate with them and with their managers to ensure that they will make time for project activities. This challenge is further compounded when project team members do not report to the same manager as the project leader, since they may have performance goals that differ from — or worse, that conflict with — the goals of the project.

Another challenge is to get the team to think and act as a team. Team building is an essential activity for the project manager.

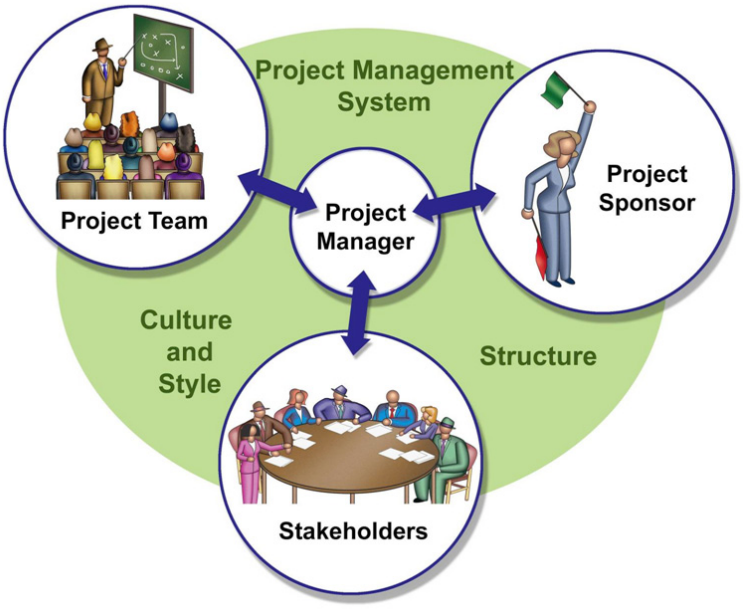
For success, it is helpful if the project team members:

- Have commitment to the project.
- Can provide the necessary skills and creativity.
- Participate in planning and decision making.
- Function as a team.

Anything the project manager can do to build the buy-in and commitment of project team members will enhance the likelihood of a successful project outcome.

The Project Environment

Projects do not occur in a vacuum. Instead, they take place in organizations that have distinct cultures, structures, and systems. Each of these factors influences the project and its success.



Culture and Style.

The culture and style of the organization consists of its collective norms, standards, and behaviors. It reflects and also shapes organizational values and attitudes. Some organizations have a culture that actively supports project management. They grant project managers significant autonomy and authority to make decisions. Other organizations may have cultures that are neutral toward project management or even hostile to it. For example, in some organizations, rewards are given to people who are considered active, rather than those who take the time to plan carefully. This may result in "crisis management," where people are rewarded for "fire fighting," while those people who work thoughtfully behind the scenes to prevent fires are ignored.

Project Management Concepts

Structure

Structure focuses on the organization overall, the organization of projects, and the involvement of project management offices (PMOs). Organizations that are **project-based** perform project work for others under contract or manage their work by project and, therefore, have systems in place to support project management. **Non-project-based** organizations lack those systems and deploying project management practices is more difficult.

The organizational structure itself can be classified as functional, projectized, or matrix. In a **functional structure**, people are located within functional areas such as marketing, accounting, design, or development. Projects are then limited to the boundaries of the functional area. For example, the design area does "design projects," while the development area does "development projects." Communication between the two projects happens between the hierarchical functional managers of the two functional areas.

In a **projectized** organization, the project managers has a great deal of authority, sometimes with the project team members reporting directly to him or her. Functional areas do exist in this type of a structure, but they provide support services to projects.

A **matrix** organization is a blend of functional and projectized. People may reside in a functional area, but they are pulled out of that area to report to a project managers for the duration of a project. The matrix may be weak, with the project managers having limited authority; or it may be strong, with the project managers having a great deal of authority and autonomy over the project and the team.

Any organization, regardless of structure, may have a **project management office (PMO)**. The function of a PMO may range from advisory, to policy and procedure development, to full authority over projects and project staff.

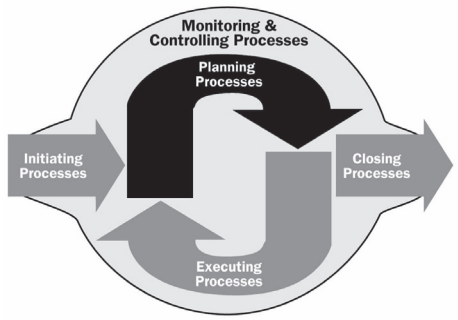
Project Management System

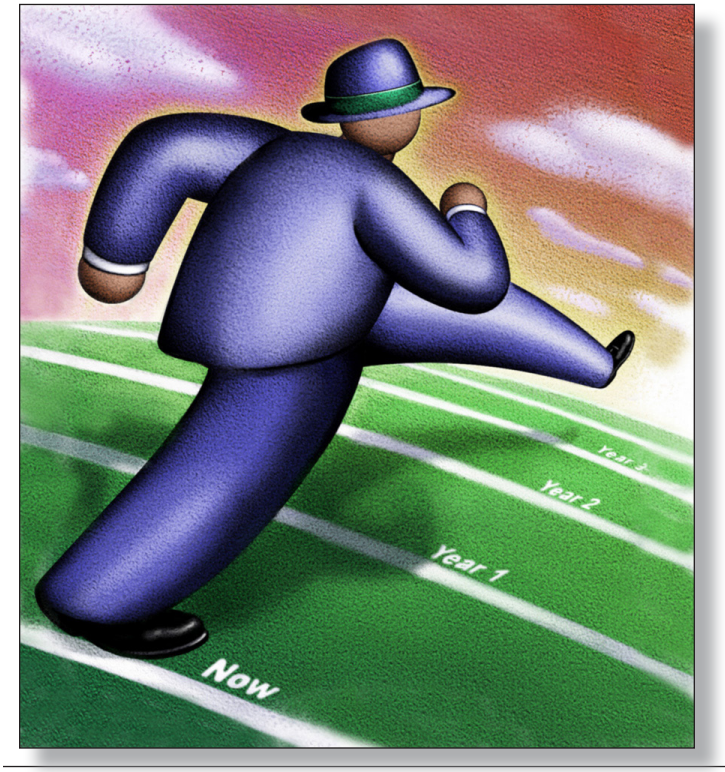
The project management system consists of tools, techniques, methodologies, resources, and procedures used to manage projects. In organizations that have a project management system, project managers do not have to "re-invent the wheel." They instead have access to information that helps to guide their progress through a project to minimize risk and maximize success. In organizations that have a PMO, the PMO often manages this system.

Key Learning Points

- A project is a temporary endeavor to create a unique product, service, or result.
- A sub-project is a smaller portion of the overall project created when a project is subdivided into more manageable components or pieces.
- A program is a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.
- A portfolio is a collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet strategic business objectives.
- The five key process groups of the project management process include: initiating, planning, executing, controlling, and closing.
- Rolling wave planning helps us understand that planning is an ongoing and iterative process, and a plan is a view of a project at a particular point in time.
- Changes to one side of the project triangle (time, cost, or scope) will most likely affect the other sides.
- Project participants include the sponsor, project manager, team, and other stakeholders.
- Projects take place in organizations that have distinct cultures, structures, and systems. Project managers must understand the environment in which the project is taking place.

Module 5 Planning the Project





- ☐ Develop Project Management Plan
- ☐ Scope Planning
- ☐ Scope Definition
- ☐ Create WBS
- ☐ Activity Definition
- ☐ Activity Sequencing
- ☐ Activity Resource Estimating
- ☐ Activity Duration Estimating
- ☐ Schedule Development
- ☐ Cost Estimating
- ☐ Cost Budgeting
- ☐ Quality Planning
- ☐ Human Resource Planning
- ☐ Communications Planning
- ☐ Risk Management Planning
- ☐ Risk Identification
- ☐ Qualitative Risk Analysis
- ☐ Quantitative Risk Analysis
- ☐ Risk Response Planning
- ☐ Plan Purchases and Acquisitions
- ☐ Plan Contracting

Planning the Project

Why Do You Plan?

One of the most important activities on any project is planning. Recall that a project is designed to produce something unique; in other words, the project represents something that has never been done before. Therefore, all projects involve some degree of risk. Planning is an essential strategy for managing and minimizing that risk.

Planning has many benefits. A good plan helps the project manager…

- Understand the project.
- Understand the requirements.
- Maintain appropriate focus.
- Develop a baseline for measuring progress.
- Manage expectations.
- Manage quality.
- Manage and respond effectively to change.
- Avoid disaster.
- Measure success.

Components of the Project Management Plan

These components help to identify "what" it is you are going to do. Note that many organizations include some or all of these items in the project charter document.

- A project charter (created in initiation)
- A project scope statement (preliminary project scope statement may have been created in initiation)

These components help to identify "how" you are going to do it:

- Project approach
- A work breakdown structure (WBS) that decomposes the project
- Estimates of activity times and costs
- Sequence of activities required to achieve the objectives
- A project schedule
- Key milestones
- Identification of required resources (people, equipment, etc.)
- Subsidiary management plans for communication, quality, and change
- Analysis of key risks to the project

Planning consists of many processes and results in many components. However, this does not mean that project management is primarily planning. Keep in mind that the amount of planning should align with the scope and needs of the project. In other words, more complex projects require more depth and breadth of planning than do simple and straightforward projects.

Planning the Project

Project Scope

A clear definition of project scope provides a foundation for confirming and developing common understanding of the project among stakeholders. Scope is also the basis for making future decisions concerning the project. As the project progresses, the scope may need to be refined as changes to the project are approved.

The project manager must be aware of two types of scope: *product* scope and *project* scope.

Product scope is defined as "the features and functions that characterize a product, service, or result." The processes, tools, and techniques used to define and manage product scope vary by application and are usually defined within a project lifecycle.

In this workshop we will focus on the processes, tools, and techniques used to define and manage project scope. Project scope is the work that must be done to deliver a product, service, or result with the specified features and functions. Scope planning identifies how the project scope will be defined, verified, and controlled and how the work breakdown structure will be created and defined.

Project Scope

The work that must be performed to deliver a product, service, or result with the specified features and functions.

The project manager must manage both project scope and product scope to ensure a successful project. The project manager will measure project scope against the project plan; product scope will be measured against the requirements.

Project Scope Statement

Project scope is defined by a scope statement, which makes clear the boundaries of the project. This statement specifies what the project will provide and contains criteria that allow the project manager and other stakeholders to identify whether a project or project phase has been completed successfully. Project teams may develop multiple scope statements that define the levels or components of work to be done by sub-teams on a particular project.

At a minimum, the project scope statement includes:

- **Product scope description** – Progressively elaborates the characteristics of the product, service or result described in the project charter and requirements documentation. This description specifies sufficient detail to bound scope of the project. It will get into details of features and functions that characterize the product, service or result.
- **Product acceptance criteria** – Defines the process and criteria for accepting completed products, services, or results. What must be completed or proven before the customer/user accepts that the project is finished. Defining this information during planning manages expectations and prevents surprises later during the execution of the project.
- **Project deliverables** – Deliverables include both the outputs that comprise the product or service of the project, as well as ancillary results, such as project management reports and documentation.
- **Project exclusions** – Generally identifies what is excluded from the project. Explicitly stating what is out of scope for the project helps to manage stakeholders' expectations.
- **Project constraints** – List and describes the specific project constraints associated with the project scope that limits the team's options. Examples might be a set budget or a mandated completion date.
- **Project assumptions** – Lists and describes the specific project assumptions associated with the project scope and the potential impact of those assumptions if they prove to be false.

Planning the Project

Project Deliverables

To satisfy each project objective, one or more deliverables must be produced. Deliverables are the products, or outputs, of the project itself.

> **Project Deliverable**
>
> *Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project.*

The term "deliverable" is often used in a narrow sense to refer to those deliverables subject to approval by the sponsor or customers. However, deliverables also include project life cycle or methodology deliverables (such as requirements documents) and project management deliverables (such as status reports and budgets).

We can distinguish between three forms of deliverables:

- **Interim deliverables** — those elements that must be produced during the project in order to enable the creation or production of final outcomes.
- **Final deliverables** — those elements associated with interim outputs that are delivered to someone, usually the Sponsor or customer. (Final deliverables are synonymous with external deliverables.)
- **Project management deliverables**— those elements associated with the process of managing and communications about the project.

Examples of interim deliverables may include:

- Design documents
- Requirements documents

Examples of final deliverables may include:

- Products (code, a manual, or an online tutorial)
- Services (electronic bill paying)
- Results (product selection or research results)
- Reports ("Disaster Recovery Plan" document)
- Training (a self-paced Microsoft® Project workshop on CD-ROM)
- Documentation (user guide for a new software package)
- Warranty/support (90-day on-site technical support)

Examples of project management deliverables may include:

- Status reports
- Performance reports
- Budget
- Closeout project summary report

As you can see, deliverables need to be tangible. They allow project stakeholders to agree that project objectives have been or will be met through tangible products.

Planning the Project

Exclusions

Exclusions

Products, services, or processes that are not specifically a part of the project.

In theory, anything not explicitly included in the project deliverables is implicitly excluded from the project.

In practice, however, various stakeholders have differing ideas and assumptions about what the product will and will not produce. When project managers fail to clarify and obtain formal agreement about project exclusions, misunderstandings often result, and misunderstandings are the primary cause of conflict.

Therefore, it is very important for project managers to state explicitly what will not be included in the project.

Constraints

Various parameters and boundary conditions will exist for virtually every project. The organization, the sponsor, and/or the customers often set constraints.

Constraints:

Factors that will limit the project team's options.

Constraints may include the following:

- Predefined budgets
- Predefined schedules (deadlines)
- Limited resources
- Technology limitations
- Geographic concerns
- Operational procedures or processes
- Political and/or cultural factors
- Legal or contractual obligations

Constraints represent factors that project teams must account for as they develop their solution for providing project deliverables. If not handled effectively, constraints may translate into project risks.

Planning the Project

Assumptions

It is impossible for project managers and project team members to know all relevant information at the start of any project. In fact, customers, sponsors, and other key stakeholders rarely have all the information desired. Therefore, project managers must identify and make certain assumptions.

Assumptions:

Factors that, for planning purposes, will be considered to be true, real, or certain.

Assumptions must be made when information is absent:

- It is imperative that they be clearly and explicitly documented.
- They should be communicated to all parties.
- Most key stakeholders should agree on them.

Assumptions often form the bases for later changes to the project plan. It is important to track and revisit them, for they are often validated or refuted as the project progresses and more detailed information becomes available.

Examples:

- All resources will be made available per project plan.
- Internal subject matter experts (SMEs) are available to populate the content.

Approach

Even while project planning is underway, project managers should begin thinking about the general strategies that can be used to achieve project objectives and produce the project deliverables. This broad, high-level strategy is called the project approach.

Approach

A description of the project management strategies or summary of other management plans for achieving project objectives and deliverables.

Various decision models can be used to compare approaches to the project. Decisions can then be made as to which approaches offer the greatest potential benefits. Regardless of the approach chosen, it must be stated clearly enough that the sponsor can understand it and provide his or her approval.

Project approaches define broadly the means by which the deliverables might be created.

Factors to consider include:

- What can be done to help achieve project objectives?
- What tools and techniques are available?
- Which tools and techniques seem best suited to the needs of this particular project?

Examples:

- All graphics will be outsourced to ABC Graphics Company.
- Project will be managed in accordance with KnowHow™ Methodology.

Planning the Project

Plan Procurements

Some approaches may include outsourcing work or acquiring products or services from a supplier. Once the project team has identified the scope of the project, created a preliminary WBS, created high-level estimates of work and cost, and analyzed the project's risks, it is time to begin planning for any procurement.

Plan Procurements

The process of documenting project purchasing decisions, specifying the approach, and identifying potential sellers

The team may use a make-or-buy analysis or expert judgment to help them decide how to plan possible purchases and acquisitions.

Working with outside resources requires some degree of experience, as there may be legal issues, financial difficulties, and disagreements over the quality of their work processes or deliverables. Novice project managers should get assistance from a more experienced project manager, supervisor, peer, or professional contact who has worked with outside resources.

The output of this effort normally includes the following items:

- **Procurement management plan** – The document that describes how procurement processes from developing procurement documentation through contract closure will be managed.
- **Procurement statements of work** – These documents define the portion of project scope that will be included in each potential contract.
- **Make-or-buy decisions** – Conclusion reached regarding what project products, services or results will be acquired from outside the project organization or will be performed internally by the project team. Detailed analysis or simple justifications may be included.
- **Procurement documents** – These are the documents used to solicit proposals from prospective sellers. They typically include the statement of work, terms and conditions and other information concerning the details of the procurement.
- **Source selection criteria** – These are criteria that the buyer develops to ensure that prospective offers are evaluated against criteria of importance to the buyer. Purchase price can be the dominant criteria, but others can include how well the seller understands the needs of the project, technical capability, management approach, technical approach, and risk management approach.

If the team decides to procure outside resources, products, or services, they will plan how the relationship will be managed. In any relationship involving outside resources, there is a buyer (usually the internal project team) and a seller (generally a vendor, contractor, or supplier). Buyer/seller relationships may exist on many levels throughout the project, and each will involve the development of a contract.

Contract

A mutually binding agreement that obligates the seller to provide the specified product or service or result and obligates the buyer to pay for it.

Contracts can take several forms:

- **Fixed-priced or lump-sum contracts**
  Involves a fixed, total price for a well-defined product.
- **Cost-reimbursable contracts**
  Involves payment to the seller for the seller's actual costs plus a fee for the seller's profit.
- **Time-and material-contracts**
  A hybrid between fixed-price and cost-reimbursable contracts. Like cost-reimbursable contracts, time-and-material contracts are open-ended. However, fixed rates can be associated with the contract as in fixed price contracts.

Planning the Project

Characteristics of an Effective Project Plan

The project plan is a formal, approved document that can be used to manage and control project execution. It should be distributed in accordance with any communication management plans.

The plan must document project planning assumptions and be detailed enough to guide the execution of the project.

In addition, a good project plan will be…

- Easy to understand
- Easy to read
- Communicated to all participants (key stakeholders)
- Appropriate to the project's size, complexity, and criticality
- Prepared by the team, rather than the individual project manager

A key challenge in achieving project success is earning consensus and buy-in from all key stakeholders. By including these stakeholders in project plan development, the project manager allows them to have ownership of the plan. This often translates into greater commitment, which, in turn, results in enhanced motivation and productivity.

The Investment of Planning

Novice project managers are often eager to "get going" on their projects. From their perspective, extensive planning is wasted time — time that interferes with and unnecessarily delays progress on the project.

In addition, some organizations have neither the culture nor the structure to support project planning. In such organizations, visible and tangible results are rewarded more highly than thoughtful, considered planning efforts.

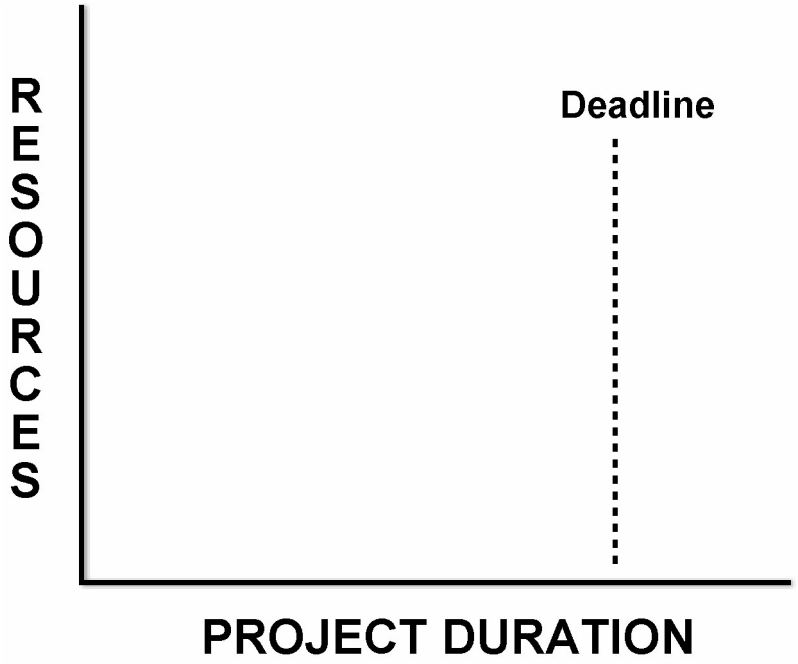
These beliefs overlook an important fact: A direct correlation exists between the quality of a project plan and the quality of execution of the project. The Standish Group (*http://www.standishgroup.com) and IEEE (the Institute of Electronics and Electrical Engineers/*http://www.ieee.org) have attempted to quantify the benefits of planning.

*These web sites are current at the time of publication.

Planning the Project

Use the chart below to record the investment and benefits of planning.

(Your facilitator will develop this chart during the workshop.)



Key Learning Points

- A project plan includes components detailing what you are going to do and how you are going to do it.
- Planning helps everyone to better understand the project requirements and to maintain focus.
- A baseline serves as a measurement for progress and change.
- The project scope includes the work that must be done to deliver the product or service.
- The measurable outcomes from a project are known as deliverables.
- Exclusions help to clarify those products, services, or processes that are not part of the project.
- The approach describes the project management strategy for achieving the project objectives and deliverables.
- In plan procurements, the team determines the work that will be done by the project team and the work that will be allocated to a seller.
- An effective plan is created by the team, is easy to understand, and is appropriate to the scope and complexity of the project.
- One hour of planning can later save several hours of corrective activity.